

METHOD FOR PHOTOCATALYTICALLY RENDERING A SURFACE  
OF A SUBSTRATE SUPERHYDROPHILIC, A SUBSTRATE WITH  
A SUPERHYDROPHILIC PHOTOCATALYTIC SURFACE, AND  
METHOD OF MAKING THEREOF

5

## ABSTRACT

The surface of a substrate is coated with an abrasion-resistant photocatalytic coating comprised of a semiconductor photocatalyst. Upon irradiation by a light having a wavelength of an energy higher than the bandgap energy of the photocatalyst, water is chemisorbed onto the surface in the form of hydroxyl groups ( $\text{OH}^-$ ) whereby the surface of the photocatalytic coating is rendered highly hydrophilic. In certain embodiments, the surface of a mirror, lens, or windowpane is coated with the photocatalytic coating to exhibit a high degree of antifogging function. In another embodiment, an article or product coated with the photocatalytic coating is disposed outdoors and the highly hydrophilic surface thereof is self-cleaned as it is subjected to rainfall. In a still another embodiment, an article is coated with the photocatalytic coating and, when the article is soaked in, rinsed by or wetted with water, fatty dirt and contaminants are readily released without resort to a detergent.

25